Development of New Low-Resource Magnetometers

Completed Technology Project (2016 - 2018)

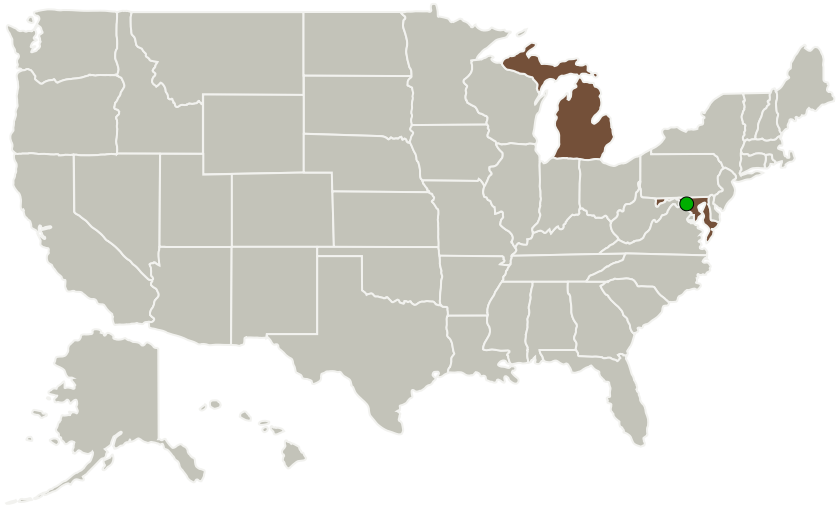
Project Introduction

Traditional space-based magnetometers are deployed on a boom that extends from the spacecraft to reduce exposure of magnetic noise from the spacecraft that could potentially contaminate measurements. This project furthers the development and testing of a new magnetometer designed for CubeSats that does not need a boom. To allow placement of these economical, science-grade instrument magnetometers on and inside the satellite bus instead of on a boom, algorithms are developed that identify and eliminate spacecraft magnetic noise.

Anticipated Benefits

These low cost instruments fulfill the stringent requirements for low-amplitude and high-precision measurements while reducing the complexity of their integration on spacecraft by eliminating the need to be placed on a deployable boom. This enables highly-affordable high-quality magnetic field measurements to be made.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
University of Michigan-Ann Arbor	Lead Organization	Academia	Ann Arbor, Michigan
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Michigan

Project Transitions

August 2016: Project Start

August 2018: Closed out

Closeout Summary: To be demonstrated on U of Michigan M-BARC CubeSat sc heduled for 2018 ISS deployment

Project Website:

https://www.nasa.gov/directorates/spacetech/small_spacecraft/index.html#.V(

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

University of Michigan-Ann Arbor

Responsible Program:

Small Spacecraft Technology

Project Management

Program Director:

Christopher E Baker

Program Manager:

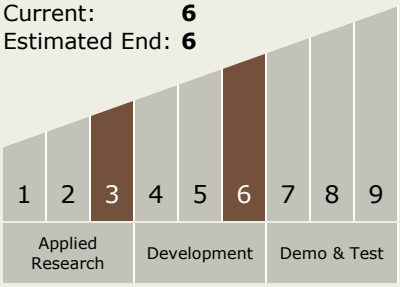
Roger Hunter

Principal Investigator:

Mark Moldwin

Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



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Target Destinations

The Sun, Earth